

REMARKS

Claims 51-68 are pending. Claim 51 is independent, and claims 52-68 depend from it. New claim 68 is added with this reply. Support for the new claim can be found, for example, in the figures. No new matter has been added.

Rejection under 35 U.S.C. § 102(e)

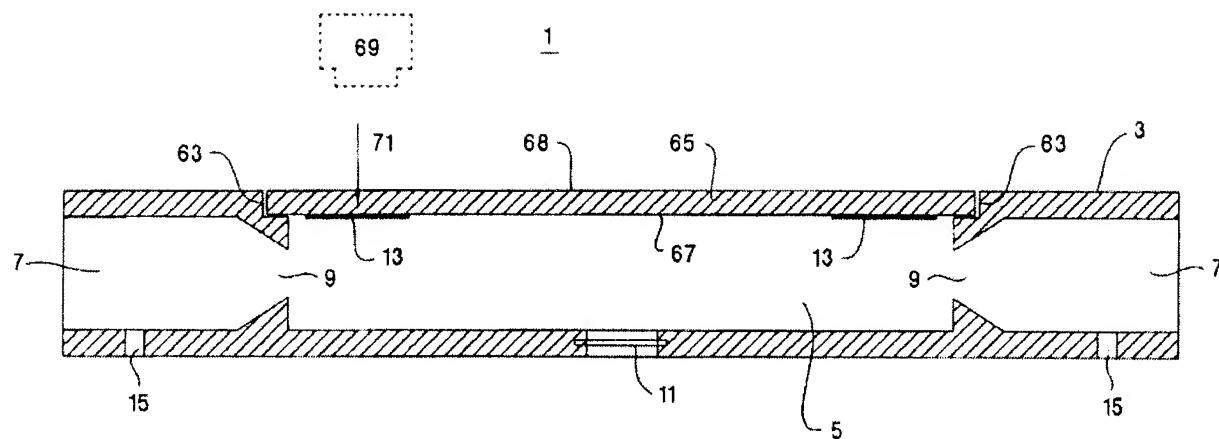
Claims 51, 58-59, 62, 64, and 66 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,162,400, to Schembri ("Schembri"). Office Action at 3. Applicants respectfully disagree.

Claim 51 relates to a device for duplicating and characterizing nucleic acids in a reaction chamber. The device includes a reaction chamber defined by (1) a chamber support having an optically permeable first surface facing the reaction chamber, (2) a chamber body sealingly placed on the chamber support, where the chamber body includes a recess having an edge configured to support a chip, and an inlet providing fluid communication between the reaction chamber and an environment external to the reaction chamber, and (3) an optically permeable chip, sealingly supported by the edge of the recess, and having a second surface facing the reaction chamber, the second surface having an array of multiple different polynucleotide probes immobilized thereon, wherein the first and second surfaces are substantially parallel.

The Examiner argues that Schembri (with reference to FIG. 6) describes

... a chamber support (#65) . . . a chamber body (#3) sealingly and unreleasably placed on the chamber body . . . the body comprising a recess having an edge (#63) configured to support a chip on the support . . . Schembri further teaches a rigid and optically permeable chip (#13) sealingly supported by the recess . . . and having an array of multiple different polynucleotide probes. . . .

Office Action at 3. For convenience, FIG. 6 of Schembri is reproduced below.



Schembri, FIG. 6

Applicants respectfully disagree with the Examiner's characterization of Schembri's element 13 as being a "chip". Schembri describes element 13 as an "active surface" of analytical substrate 65. Substrate 65 can be "glass, plastics, fused silica, and quartz," i.e., a solid material. In contrast, "active surface 13 includes biochemical, chemical, or biological moieties." Element 13 is not a chip, but rather a region of substrate 65 to which moieties are attached.

Even if element 13 is considered to be a chip (which Applicants do not concede), the Examiner's assertion that it is sealingly supported by recess 63 is unwarranted. At best, this assertion requires a highly strained reading of the claim term "supported." The Examiner understands as much, noting that "optically permeable chip (#13) [is] sealingly supported by the recess (via the attachment to the inner surface of the support). Thus element 13 is not supported by recess 63 but is merely attached to substrate 65.

Furthermore, Schembri does not teach three distinct elements to make up the reaction chamber. As Applicants have previously discussed (see, e.g., the response filed December 11, 2008), claim 51 defines the device with three distinct elements: a chamber support, a chamber body, and an optically permeable chip. As the Examiner reads Schembri, element 3 is a chamber body and element 65 is a chamber support. Element 13, alleged to be a chip, is not in fact a chip. But once again, even if element 13 is considered for the sake of argument, to be a chip, Schembri does not anticipate claim 51. The claim indicates that the reaction chamber is "defined" by the chamber support, chamber body, and optically permeable chip. If the Examiner's understanding

of Schembri is accepted, elements 3, 65, and 13 do not define a reaction chamber. They do not define a reaction chamber because element 13 is "positioned on the inner surface 67 of the analytical substrate 65." There is no space between 13 and 65 either described in the text or apparent in FIG. 6 that could be considered a reaction chamber. Indeed, the Examiner indicates that element 5 is the reaction chamber. Assigning element 5 as being the reaction chamber is a sensible reading of Schembri, but incompatible with there being a reaction chamber defined by elements 3, 65, and 13.

Rejections Under 35 U.S.C. § 103(a)

Yasuda in view of Stapleton

Claims 51-55 and 58-66 have been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent 6,093,370 to Yasuda et al. ("Yasuda") in view of U.S. Patent 5,922,604 to Stapleton et al. ("Stapleton"). Office Action at 4-8

The Examiner argues that Yasuda teaches, among other features, "a chamber body (lower plate #722) placed on the chamber body [sic, support] (Fig. 6 & 8), the body comprising a recess having an edge configured to support a chip (#1) on the support (see side view, Fig. 8) Yasuda further teaches a rigid and optically permeable chip (#1)." Office Action at 4-5. Applicants respectfully disagree.

Nowhere does Yasuda teach that substrate 1 is optically permeable. The device and system of Yasuda rely only on the transparency of upper plate 721. See, e.g., Fig. 6 of Yasuda, showing microscope objective 15 proximal to upper plate 721. Fig. 6 also shows that the optical path distal to the microscope objective is blocked by Peltier devices 32, 34, 35, and by cooling plate 33. Thus Yasuda neither teaches nor provides motivation to use an optically permeable chip.

Stapleton does not remedy this defect. In particular, Yasuda teaches using Peltier devices adjacent to the lower plate (see, for example Fig. 8). The location of the Peltier devices necessarily interferes with optical transmission from beneath the device. Accordingly, Yasuda teaches away from using a transparent material for substrate 1 or lower plate 722. Because Yasuda teaches away from Stapleton, the two references may not be properly combined. See MPEP 2141.02 VI (prior art must be considered in its entirety, including disclosures that teach

away from the claims) and 2143.01 VI (the proposed modification cannot change the principle of operation of a reference; here, the use of Peltier devices to control temperature).

Nor does Yasuda teach a chamber body that includes a recess having an edge configured to support a chip. See Yasuda Fig. 8. Substrate 1 is set in lower plate 722. Lower plate 722 is continuous under substrate 1, supporting its entire surface. Yasuda does not teach, suggest, or motivate a person of ordinary skill in the art to make a chamber body that includes a recess having an edge configured to support a chip.

Stapleton does not remedy this defect. Stapleton does not teach a chamber body including a recess having an edge configured to support a chip. Because the references, when combined, do not teach all the claimed limitations, claims 51 and those depending from it are nonobvious over Yasuda in view of Stapleton.

Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Yasuda in view of Stapleton and McBride

Claims 56 and 57 have been rejected under § 103(a) as being obvious over Yasuda in view of Stapleton and in further view of U.S. Patent No. 6,296,752 to McBride et al. ("McBride"). Office Action at 8-9.

As discussed above, Yasuda and Stapleton do not teach all the limitations of independent claim 51. McBride does not remedy this defect. The combination of Yasuda, Stapleton, and McBride does not teach, suggest or motivate a person skilled in the art to make the devices of claims 56 and 57. For at least these reasons, Applicants request that the Examiner reconsider and withdraw this rejection.

New claim 68

New claim 68 is added with this reply. The claim depends from claim 51, and relates to a device in which the first surface is held opposite to the second surface by the chamber body. In other words, the first surface faces the second surface across a space, the space being created by the thickness of the chamber body. Applicants believe claim 68 is patentable over the art of record, and respectfully request that the Examiner allow it.

Applicant : Ralf Ehricht et al.
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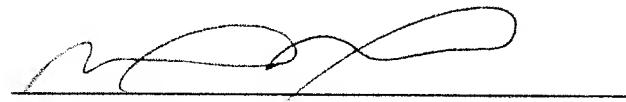
Attorney's Docket No.: 15111.0066 / CLON0001 US

CONCLUSION

Applicants ask that all claims be allowed. Please apply any charges or credits to deposit account 19-4293.

Respectfully submitted,

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